Independent Assessment

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Understanding Business Value: Picking a Middleware Solution

July 9, 2007

Abstract

When selecting software products, your assessment must encompass all the factors that impact the business value derived from the software. That means conducting a TCO analysis in which you identify and quantify a range of factors, from the integration of software components, to the adoption of a consistent programming model, to the reputation of the vendor itself as you try to determine the likely business value delivered by the software.

Middleware in particular enhances business value in a number of ways. It can protect current and future IT investments, enable agility, or speed time to market—any of which contribute to quantifiable business value. Only by including factors like these can you understand the full cost of a software product in relation to the business value delivered.

In the following paper, we highlight ways that middleware products contribute to business value. You will find a 4-step approach for assessing that value and a handy tool, a software value matrix, to help you. Using a major healthcare insurance provider as an example, we review its software selection process and apply the software value matrix to the insurer's experience.

The insurer's case came down to choosing between a BEA or WebSphere solution. Although BEA had a clear edge in ease and speed of deployment and was the incumbent vendor, such factors as WebSphere's consistent development model, integrated toolset, leadership on standards, and investment protection gave WebSphere a substantial advantage in the insurance provider's TCO analysis, once it quantified all the factors that impacted business value.

Today's IT conundrum: maintenance or business innovation

Once just keeping the systems infrastructure operating was considered IT success. Today the organization wants much more from IT. CIOs are being called on to use IT to identify, enable, and create new business opportunities. With IT maintenance often consuming as much as 80% of the organization's IT budget, the pressure is on to free up more of that budget for development that supports process innovation and new opportunities.

A corresponding shift is underway as organizations increasingly opt for a coordinated IT development strategy based on a consistent development model, standards, and integrated tools and products rather than the ad-hoc quick hits and one-off efforts of the past; efforts that delivered small short term gains, but at the expense of building a foundation for the delivery of ongoing value. Today the CIO and the rest of the C-level management team understand the importance of such an architected approach to IT, one that builds a foundation for achieving business value now and over the long term.

Central to this effort is the emergence of the service-oriented architecture (SOA). SOA, an approach to software built around a set of reusable standards-based services and middleware, may be more costly in the short term as organizations ramp up the effort, but can deliver far greater value long into the future. Specifically, it enables business agility, flexibility, and responsiveness as services can be combined and recombined repeatedly to meet changing business needs. Such reuse certainly lowers IT costs. It also speeds development and spurs innovation while helping to simplify and integrate otherwise complex IT infrastructures.

In one way or another these attributes—business agility, flexibility, responsiveness, development speed, and more—provide real business value that can be quantified. Consider this:

> You are an established company that finds its market, after years of stability, has begun to change quickly. Maybe a new competitor arrived offering different features. Or an old competitor streamlined some processes and can now deliver the product faster or cheaper. You recognize the need to change, you probably even know what you need to change, but making the necessary adjustments to your complex existing systems to support the business changes presents a serious obstacle. Systems may need to be recoded, interfaces rewritten, new links made, and on and on. It can be done, but it will take considerable time and money. And when you're finished, there is a great likelihood that things will change again, or have already changed in the interim, starting the costly cycle all over as your company risks falling further behind.

An IT strategy based on SOA and supported by middleware dramatically alters this picture. You can respond to changes by assembling composite applications from existing reusable services. You eliminate the need rewrite interfaces, redefine links, or recode systems just because something has changed. Instead, making a change that once required days of programming and testing often can be made quickly by a business manager, as easily as clicking a rule in a rules engine. To get there, however, you will need to identify a software vendor that enables these kinds of capabilities. This paper will assist you with that vendor selection.

What is value?

How do you determine the value of an IT investment? It starts by identifying the aspects of a software solution that impact the business and quantifying their value.

Factors, like fast time to market, flexibility, responsiveness, speed of development, investment protection, and integration, can be identified and the corresponding business benefits quantified. How, for example, do you quantify the value of an integrated toolset? Simple; it's the value of increased developer productivity plus the value of getting to market faster plus the value of catching a fleeting opportunity or increasing customer satisfaction. When assessing the value of an investment in software it is the business value and benefits derived where you really want to focus.

Not every software product, even when the features and functionality appear similar, delivers the same level of business value and benefit. Therefore, you need to identify and quantify the factors that deliver business value over the long term and incorporate them into your total cost of ownership (TCO) analysis.

What goes into TCO? It starts with acquisition and maintenance costs, but includes much more. There are hardware and software costs, administration costs, training and support costs, and integration costs to consider. Speed of deployment, ease of use, and the cost of vendor management also need to be considered in your TCO. Solutions that involve components from multiple vendors, for example, inherently entail higher vendor management costs. All these costs must be considered.

Vendor selection: evaluating software value in business terms

Quantifying value elements can be challenging, especially when compared to the more tangible aspects of TCO such as cost and license terms. How do you compare, say, one vendor's commitment to standards or level of product integration with another's? It certainly is not as straightforward as checking off product features from a list. Selecting the right vendor is a difficult task, involving both technical and business considerations. Here is a simple 4-step methodology you can follow to ensure you get off to the right start:

1. Start by comparing the vendor's ability to meet your technical requirements such as features, functions, protocols and specifications.
2. Write down the tangible costs associated with each proposal such as product acquisition and maintenance costs, hardware costs, software development costs and administration costs.
3. Add in intangible factors that deliver business value, like standards adoption, component and toolset integration, a consistent development model, support for business process modeling, or vendor viability.
4. Quantify the business value related to all the factors, technical and business, defined in Steps 1 through 3.

Many papers have been written on the first two steps and many IT organizations have a formal methodology in place to conduct such evaluations. Quantifying step 3, however, is a bit more challenging and where we will focus on in this paper.

To assess the business value potential of a software product, you need to look at a range of product and vendor attributes alongside the usual technical considerations. Here is a list of value factors you may want to consider:

- Services orientation—services-enabled software has demonstrated its ability to accommodate business change by supporting the rapid reuse, repurposing, and reconfiguration of services to form new composite applications.
- Support for business process modeling—rapid development methodologies, such as model-based development and high level frameworks speed the delivery of new business functionality while helping to align IT and business.
- Business level reusability—through support for common business services repositories, code libraries, and tools that expedite software reuse and simplify efforts to leverage existing services and code.
- Broad, integrated functionality—software that is part of an integrated suite of complementary functionality offers the best chance to deliver the functionality you want in the most efficient and cost-effective way through common interfaces, common metadata, and a common look and feel.

- Extensibility, scalability—modular software that can be recombined as services in different ways, replicated to scale out, or scaled up through broad platform support.
- Industry vision, leadership, market share—software based on a realistic yet forward-looking vision of business and technology trends strongly backed by a leading vendor enhances investment protection while a large market share attracts a broad ecosystem of partners and ISVs who add value to the solution. A strong market share position also ensures the vendor's continued investment in product enhancements.
- Protection of existing and new IT investments—support for existing and emerging standards, widely adopted communications protocols, common platforms, and industry accepted approaches and practices.
- Vendor's ecosystem—the complementary products and services provided by third parties enhance the value of the software product. The ability to cultivate, integrate, and maintain a strong ecosystem of complementary tools, services, and partners is essential.

Choosing software based on business value: a real world example

Now we're ready to look at one company that recently went through a thorough middleware product assessment in an effort to find a long-term solution to simplify its complex IT environment.

The company is a major healthcare insurance provider. It has millions of subscribers and offers a wide, complex, and frequently changing variety of plans to meet its members' needs along with meeting various healthcare and business regulatory requirements, such as Sarbanes Oxley and HIPAA. The understaffed IT team faced a huge backlog of projects while demand for new projects continued to grow. As IT struggled just to maintain the current systems and level of service, top management was growing frustrated about the size of the IT investment and the slowness of new development. In short, nobody was happy, and IT was under the gun.

The IT group realized it needed a major overhaul of its systems environment and initiated discussions with a number of vendors. Eventually, it whittled down its choices to four options: 1) stay with the current best-of-breed, mixed vendor approach led by BEA, 2) adopt a WebSphere-based middleware/SOA strategy, 3) adopt a BEA-based middleware/SOA strategy, and 4) combine options
2 and 3.

Option 1, which required IT to continually write code to keep the various pieces functioning together, already wasn't working and costs were escalating. When considering Option 4, IT foresaw it would further aggravate the same issues they were

facing with Option 1. Option 4 would require IT to manually integrate the various proprietary BEA pieces and then connect the resulting hodgepodge of proprietary and custom code to WebSphere and maintain it indefinitely. Not surprisingly, Option 4 was discarded too. That left the insurer to pick between the IBM WebSphere suite of products (Option 2) and a mix of WebLogic and AquaLogic products from BEA (Option 3).

A key problem, IT realized, was the amount of development work required simply to keep things running when something in the business or the environment changed. BEA was the incumbent vendor and its products were easy to install and quick to get up and running. IT was already familiar with BEA, making tasks easier to perform. All this made BEA the more natural selection. However, BEA's recently expanded portfolio had not been integrated by the vendor, which would have forced IT to do a lot of hand coding and hardwiring of various pieces. Already, IT couldn't make a dent in its backlog given the amount of coding it had to undertake just to keep its current BEA environment working. And BEA's reliance on multiple programming models simply compounded the work IT had to do.

By contrast, the WebSphere suite, although unfamiliar to the IT group, was thoroughly integrated. It was based on a single programming model and used industry standard tools like Eclipse and industry frameworks like SCA, which would make it easier to maintain over the long term. It had taken IBM a long time to get to this point, but by now it had evolved an elegant, streamlined approach that dramatically reduced the amount of coding required, to zero in many cases. While IT expected BEA would eventually achieve a more integrated platform, the insurer needed an immediate solution and couldn't afford to wait.

Although both vendors could provide the major functionality the insurer needed (assessed in step 1 of the analysis), they took different approaches to delivering it. This wasn't just a philosophical difference; it had real TCO implications. For example, the IBM approach normalizes the data structures, which are easier to reuse. BEA uses control files that require the IT group to rebuild data maps every time it needs to make a change or integrate with another application. Therefore, the IBM approach would save IT considerable work every time something changed.

BEA went into the evaluation with obvious strengths as noted above. However, BEA also had shortcomings. Key pieces of its solution were proprietary and the platform as a whole was not integrated. The lack of a common development model would force IT to master very different environments. In many cases, BEA, due to acquisitions, offered a choice of incompatible products to perform the same function, such as two portal products and two process products. BEA was unclear about how and when those products would be rationalized. Moreover, BEA required three products to perform the integration required by the insurer as well as writing hundreds of lines of code.

By comparison, the WebSphere solution came as an integrated product set, no coding required. It provided a consistent, uniform programming model across all components,

which would reduce the effort required by IT, and it supported Service Component Architecture (SCA). SCA allows for the decoupling of service implementation and service assembly from the details of infrastructure capabilities and from the details of the access methods used to invoke services. In short, with SCA the IT group could eliminate the problems associated with hardwired components.

Since the insurer already had rung up excessive costs trying to maintain a hardwired IT infrastructure encompassing multiple vendors, the WebSphere solution encompassing SCA looked very appealing. Through its TCO analysis, the insurer determined that the integrated WebSphere product set would not only lower its TCO (by almost 32% vs. BEA over 5 years, see Figure 1) but would simplify the IT infrastructure, which also would pay off in increased agility and flexibility. Subsequently, WebSphere XD (Extended Deployment) would further enhance the TCO through such capabilities as the server optimization, the ability to deploy applications without interruption of the production system, and performance health monitoring administered from a single console.

Figure 1 depicts the cumulative costs of each of the insurer's four options. The IBM WebSphere solution (red) offers the lowest cost of ownership over five years.

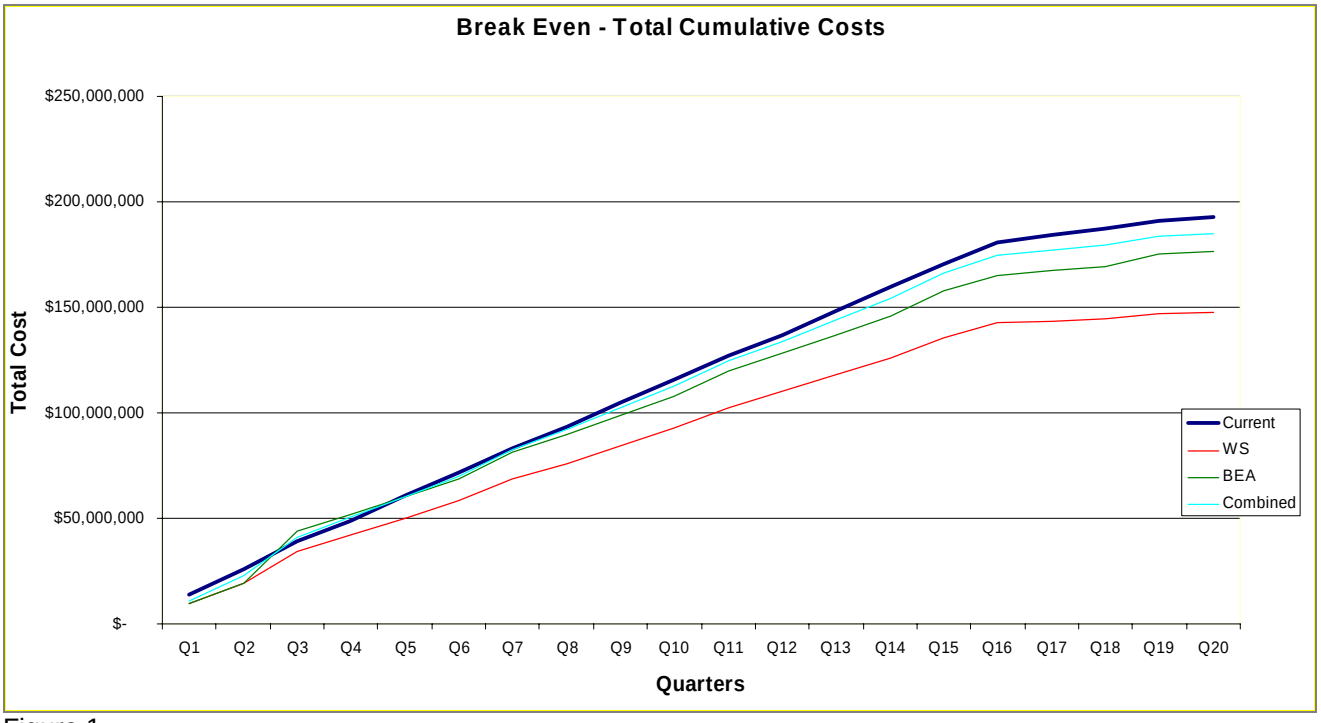

Figure 1

The integrated WebSphere solution also provided a single desktop UI from design and development through management of the deployed systems. The insurer felt this would streamline application development and deployment, again contributing to business agility and speeding time to market while increasing IT productivity.

The insurer also intended to adopt SOA within a few years for the responsiveness and flexibility it enabled. It particularly liked the WebSphere approach to SOA, which would allow the insurer to start with the enterprise service bus (ESB) middleware immediately to gain a fast integration pay back while building out the rest of the WebSphere SOA solution over time.

Many of the insurer's immediate problems revolved around business process design and management. These problems called for process design and business portal solutions. The insurer opted for the broad WebSphere integrated product set, which included a portal product and model-driven process design. Given IBM's strong involvement with the BPEL specification, it was able to offer that expertise to the insurer, further adding to the value of the solution. With BPM alone, IBM's model-based approach eliminated the need to write any code. BEA required over 400 lines of code to be written. The IBM approach, as it turned out, wasn't significantly faster, but just by not writing code, the insurer could eliminate one more source of potential errors. Finally, IBM also made available its large library of pre-built portlets to speed portal development, something BEA couldn't offer at that time.

All of the above issues came out when the CIO conducted a full TCO analysis that quantified business value-related issues, such as ease of use, level of product integration, and more. Although both BEA and IBM offered similar features and functionality, this exhaustive TCO, including the business value that the WebSphere solution brought to the analysis, clearly indicated IBM as the best choice. In the end, the insurer opted for the WebSphere solution. This would address its immediate backlog and portal and process management problems while giving the insurer speed, agility, and flexibility moving forward as it evolved its SOA.

The software value matrix: applying one company's experience

The healthcare insurer, in effect, created a software value matrix to assess the total business value delivered by the products under consideration. (The matrix, displayed below, uses a simple scale, 1-10, the higher the number, the better.) A wide range of factors relating to the vendor as well as the product contribute to the value of a software solution. Based on the healthcare insurer's experience, here are some guidelines when assessing the business value of a software decision:

1. Address immediate and future needs—addressing the immediate need without regard for long term needs is shortsighted at best. Look to solve immediate needs with solutions that can be part of a forward looking strategy. IBM has the advantage here.
2. Plan for change—processes must change because the business changes. The solution must be flexible and agile enough to allow for new and changed processes. This is a challenge best addressed by process modeling. In this IBM has the advantage.
3. Completeness—IT infrastructures have grown too complex to sustain a best-of-breed, mixed vendor approach, which increases the cost and the risk. An integrated comprehensive solution generally will deliver greater business value even though a few specific features may fall short. IBM wins here.
4. Standards—support for standards is key to reducing vendor lock-in. Both BEA and IBM support a broad set of standards although neither supports the latest release of every relevant standard. Give IBM a slight edge here.
5. Consistent development model—like an integrated solution this will reduce costs and speed learning while enhancing business agility. Essentially it lets your developers achieve higher efficiency as they move between parts of the application by sharing metadata and such. BEA, at present, has multiple development models. IBM, with its single development model, has the advantage here.

Software Solution Value Matrix
Scale: 1-10 (1=least advantageous, 10=most advantageous)

No.	Value Factor	BEA	IBM
1	Address immediate and future needs	7	9
2	Process modeling, management	5	8
3	Completeness (single vendor solution)	6	9
4	Standards	7	8
5	Consistent development model	4	9
6	Integrated toolset	5	9
7	Ease of adoption	8	5
8	Speed, time to value	8	7
9	Industry leadership	5	9
10	Investment protection	5	9
	Average	**6**	**8.2**

6. Integrated toolset—like the consistent development model this enables higher developer productivity. Without an integrated toolset, developers have to spend time learning different tools and integrating the tools. The IBM toolset is well integrated; BEA is not. IBM scores a big advantage here.
7. Ease of adoption, ease of deployment—this speeds time to value while lowering costs. In the insurer's analysis, BEA scores high on ease of adoption.
8. Time to market—the sooner you deliver functionality, the sooner you capture value. With its ease of deployment advantage, BEA wins here too, at least initially.
9. Industry leadership—leveraging a vendor's leadership in important areas, as the insurer did with business process management and SOA, reduces risk and lets you capture more value sooner. Score this one for IBM.
10. Extensibility, investment protection—you want to protect and extend investments in your existing technology. Open standards and the modularity of services make this practical. This plays to IBM's strengths.

You can see the results when applying these guidelines to the insurer's software assessment. The values are relative, in this case reflecting the health insurer's assessment of each vendor's strength for a given value factor (your assessment may differ). The results closely reflect the insurer's actual TCO analysis and proof-of-concept demos and are consistent with the company's final decision.

The value of assessing business value

There are quantifiable real dollar benefits to factors that impact business value although they may be more difficult to immediately measure than direct costs. Agility, for example, enables you to respond to customer demands more quickly, which indeed rings the cash register. An integrated toolset enables your people to work more efficiently and productively, which has a clear financial benefit as well as speeding the process of integrating and managing the IT infrastructure. Each business value factor correlates to real cost savings and financial gains that can be measured (admittedly, with some extra effort).

As a result, by identifying and quantifying business value as part of your TCO analysis, you will end up with a more complete understanding of the true long-term costs and the full benefits of your middleware selection. Only by understanding both the costs incurred and the business value gained over time, can you know the full impact of your software decisions.

About Independent Assessment

Independent Assessment (http://www.independentassessment.com) is produced by Alan Radding, Technology Writer. It provides third party ROI and TCO analysis, competitive assessment and case studies. Alan Radding can be reached at 617-332-4369, alan@radding.net, PO Box 590340, Newton, MA 02459